

nd expected timing error accuracies in periodically broadcast Neighbor Lists.

[0064] During acquisition of the forward link signal of a serving base station (BTS1), the mobile station establishes an MS CDMA System Time based on timing information within the BTS1 forward link signal. Because of the propagation delay in the forward link channel from BTS1 to the MS, the MS CDMA System Time used by the MS will lag behind BTS1 CDMA System Time. The lag time between the MS CDMA System Time and BTS1 CDMA System Time is equal to the one-way propagation delay in the signal (T1) 404.

[0065] The PN phase of reverse link signals transmitted by the MS are aligned with MS CDMA System Time. BTS1 measures the PN phase of the reverse link signals 412 received from the MS and uses the reverse link PN phase to determine the round-trip delay time (RTD1) 406 between BTS1 and the MS. Once RTD1 406 is known, then T1 404 is known to be half of RTD1 406.

[0066] In an exemplary embodiment, the serving base station (BTS1) sends a Neighbor List of nearby "neighbor base stations" to the MS. The Neighbor List includes identifying characteristics of the forward link signal of each neighbor base station. For an asynchronous neighbor base station such as BTS2, the Neighbor List includes such information as pilot code, an estimate of .DELTA.TE 417, and the expected accuracy of the .DELTA.TE estimate. The Neighbor List may also include path delay uncertainty information.

[0067] In an alternate embodiment, each asynchronous base station periodically adjusts its CDMA System Time after performing a handoff with a "master" base station as described in the aforementioned '774 patent. After performing each such adjustment, the asynchronous base station adds an offset to each timing error estimate in its broadcast Neighbor List.

[0068] If the estimate of .DELTA.TE 417 for BTS2 in the Neighbor List is known to be accurate, such as when it has been updated recently, the MS does not perform the full three-step PERCH acquisition procedure. For example, if the inaccuracy of the .DELTA.TE estimate is less than half of a 10-millisecond frame, then the MS can search for the pilot code of BTS2 within a search window based on the inaccuracy of the .DELTA.TE estimate. Alternatively, the MS can

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